

CLAIMS

What is claimed is:

1. A method of determining a specific constituent in
5 a liquid stream, comprising:

selecting a sample for testing;

10 programming the controlled movement of the sample
through selected configurations of analytical
manifolds;

15 controlling via computer control the sample flow;
and

automatically measuring a reaction product to
complete a flow injection analysis.

2. The method as recited in claim 1, wherein
20 controlling the sample flow comprises utilizing computer
control over the pumping of one or more reagents through
each analytical manifold.

3. The method as recited in claim 2, wherein
controlling comprises automatically pumping the sample and
the reagents into a fluidic interface buss.

5 4. The method as recited in claim 3, wherein
controlling comprises automatically mixing the sample with
the one or more reagents on each analytical manifold.

10 5. The method as recited in claim 4, wherein
controlling comprises automatically rinsing the analytic
manifolds with an appropriate wash solution.

15 6. The method as recited in claim 1, wherein
controlling comprises automatically adjusting a rotary valve
to select a desired analytical manifold to receive the
sample.

20 7. The method as recited in claim 1, wherein
controlling comprises sequentially analyzing the sample in
two or more analytical manifolds.

8. The method as recited in claim 1, wherein
controlling comprises analyzing the sample in parallel on
separate analytical manifolds.

9. An automated ion analyzer, comprising:

5 a flow injection analyzer having a plurality of
analytical manifolds; and

10 an automated control system coupled to the flow
injection analyzer, the automated control
system being configured to control an
analysis of a sample on one or more of the
analytical manifolds selected by an operator.

15 10. The automated ion analyzer as recited in claim 9,
wherein the flow injection analyzer comprises a plurality of
computer controlled valves to selectively release carrier
fluid and reagent.

20 11. The automated ion analyzer as recited in claim 10,
wherein the flow injection analyzer comprises a plurality of
computer controlled pumps.

12. The automated ion analyzer as recited in claim 11,
wherein at least one pump comprises a reagent pump.

13. The automated ion analyzer as recited in claim 11,
wherein at least one pump comprises a carrier pump.

14. The automated ion analyzer as recited in claim 11,
5 wherein at least one pump comprises a sample pump.

15. The automated ion analyzer as recited in claim 11,
wherein the flow injection analyzer comprises a computer
controlled rotary valve to automatically control the
10 injection of a sample onto a selected analytical manifold.

16. The automated ion analyzer as recited in claim 11,
wherein the automated control system comprises a computer
control system.

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17. An analytical system for determining the presence
of specific constituents in a liquid stream, comprising:

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a sample routing system;
a reagent mixing system to selectively mix a
plurality of reagents with a sample;
a reaction product detector; and

a control system to automatically control routing
of the sample through the sample routing
system, mixing of the plurality of reagents
5 with the sample and routing of the reaction
product to the reaction product detector.

18. The analytical system as recited in claim 17,
wherein the control system comprises a computer control
10 coupled to a plurality of pumps and a plurality of valves to
selectively control flow of a sample and the plurality of
reagents.

19. The analytical system as recited in claim 18,
15 wherein the reagent mixing system comprises a plurality of
analytical manifolds independently coupled to a unique
reagent supply, the plurality of analytical manifolds being
individually computer controlled.

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